

306 GATE/BUTTERFLY VALVES

306.01 DESCRIPTION

Work consists of furnishing and installing gate and butterfly valves. Gate valves may be either standard or resilient-seated type. Excavation and backfill, if necessary, and valve casings are included as part of Valve Casings per 302, harnessing is included as part of Pipe Water Main Ductile-Iron per 305, Butterfly Valve Manholes per 304 or Valve/Venturi Vaults when applicable per 321. Work includes gate valves for drain blowoffs.

306.02 SUBMITTALS

Drawings per 105.02 shall be submitted for valve and joint details.

Affidavits, certificates, and manufacturer's test results shall be submitted per this Section, including:

(1) For Gate Valves:

Catalog Data - Prior to purchase of the valve, the Contractor shall submit to the Engineer, for approval, catalog data, net weight, and certified assembly drawings. No valve shall be furnished or installed unless approved in writing by the Engineer.

Affidavit - An affidavit of compliance shall be furnished by the manufacturer that specifies tests have been performed and that all components and the product comply in all respects with requirements of specifications.

Records of Tests - Record of physical and chemical properties, operating and hydrostatic tests shall be furnished.

(2) For Butterfly Valves:

Test data shall be furnished by the manufacturer.

The Contractor shall submit manufacturer's certified drawings of the valves including valve operators, gear ratios, electrical schematics (where electrical operators are furnished), and parts lists.

An affidavit from the manufacturer shall be submitted stating that valves furnished comply with all applicable provisions of this specification.

Certified test reports covering performance, leakage, and hydrostatic tests shall be furnished.

The Contractor shall submit a statement giving required number of turns of the operating nut to move the disc from fully open to fully closed (or vice versa) position.

306.03 MATERIALS

Gate Valves - 810.01(A)

Resilient-Seated Gate Valves - 810.01(B)

Butterfly Valves - 810.01(C)

306.04 CONSTRUCTION REQUIREMENTS

(A) PRIOR TO INSTALLATION INSPECTION. Gate valves will be inspected at the time of receipt for damage in shipment, compliance with specifications, direction of opening, size and shape of operating nut, number of turns, and type of end connections. A visual inspection of the bronze gate rings and body rings will be performed to detect any damage in shipment or scoring of the seating surfaces. Any foreign material in the interior portion of the valve shall be removed. The valve will be cycled through one complete opening and closing cycle.

(B) INSTALLATION. Six-inch through 12-inch diameter gate valves shall be installed vertically in the water main by means of standard mechanical joints per 305.

Valves 16-inches through 24-inches diameter shall be butterfly valves installed with mechanical joints per 305.

Valves 30-inches diameter and larger shall be butterfly valves installed with flanged joint ends bolted to accompanying flanged and plain-end pieces such that the plain-ends will accommodate flexible rubber-packed mechanical sleeve couplings, and shall meet the requirements for tolerance of ends of steel pipe to be coupled in a similar manner as described in AWWA C 201 or C 202. The exterior of the flanged and plain-end pieces shall be coated with a suitable bituminous coating and the interior lined with cement mortar per AWWA C 104.

Valves shall be installed in the closed position.

Placement and restraint shall be per methods in 305.

(C) AFTER INSTALLATION INSPECTION. After installation and before pressurization of the valve, all pressure-containing bolting (bonnet, seal-plate, bypass, and end connections) will be inspected for adequate tightness of all tapped and plug openings to the valve interior. The Contractor shall make any adjustments or alterations as directed.

(D) TESTS. Pressure test will be conducted as part of the water main test per 305.

306.05 MEASURE AND PAYMENT

The unit of measure will be each.

Payment for Gate/Butterfly Valve will be made at the contract unit price per each, which payment will include flanged and mechanical joint ends, flanged and plain-end pieces where needed along with sleeve couplings, and all labor, materials, tools, equipment and incidentals needed to complete work specified.